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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,220	02/17/2004	Dieter Schulz	747/9-1910	9479

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EXAMINER

PHAN, MAN U

ART UNIT	PAPER NUMBER
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2619

MAIL DATE	DELIVERY MODE
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02/04/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/780,220

Applicant(s)

SCHULZ ET AL.

Examiner

Man Phan

Art Unit

2619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☒ Claim(s) 5-6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Response to Amendment and Argument

1. This communication is in response to applicant's 11/19/2007 Amendment in the application of Schulz et al. for a "Method of dynamic adaptation for jitter buffering in packet networks" filed 02/17/2004. Claims 1-6 are pending in the present application.
2. Applicant's remarks and argument to the rejected claims are insufficient to distinguish the claimed invention from the cited prior arts or overcome the rejection of said claims under 35 U.S.C. 103 as discussed below. Applicant's argument with respect to the pending claims have been fully considered, but they are not persuasive for at least the following reasons.
3. Applicant's argument with respect to the claim 1 that there is no teaching or suggestion of "any regulation of the rate at which packets are added or to drained from the buffer" (remark page 7, first paragraph). However, It is the claims that define the claimed invention, and it is claims, not specifications that are anticipated or unpatentable. *Constant v. Advanced Micro-Devices Inc.*, 7 USPQ2d 1064. Furthermore, Lanza fame is applied merely for the teaching of the determining an appropriate buffer size for the variable buffer 208 (jitter buffer) on a dynamic basis so as to minimize delay while also preventing packet overrun. The Applicant's attention is directed to Fig. 2 of Lanza fame for an IP receiver 108 with a dynamic jitter buffering process implemented, in which the variable buffer 208 has a buffer size that varies in accordance with control signals applied thereto by the buffer control element 212. A dynamic buffering process first computes a target for the jitter buffer by applying a filter having fast attack and slow decay characteristics to a set of one or more packet delay measurements. Advantageously, such a filter

adapts quickly to changing network conditions and yet does not overreact to a deviation of a single packet. After the target size is computed, the process adjusts the jitter buffer size if necessary at a time that is determined to be "safe" based on an analysis of speech components of the received voice signal (*the steps for the regulation of the rate at which packets are added to or drained from the buffer 208*)(Col. 5, lines 40 plus).

4. In response to Applicant's argument that the reference does not teach or reasonably suggest the functionality upon which the Examiner relies for the rejection. The Examiner first emphasizes for the record that the claims employ a broader in scope than the Applicant's disclosure in all aspects. In addition, the Applicant has not argued any narrower interpretation of the claim limitations, nor amended the claims significantly enough to construe a narrower meaning to the limitations. Since the claims breadth allows multiple interpretations and meanings, which are broader than Applicant's disclosure, the Examiner is required to interpret the claim limitations in terms of their broadest reasonable interpretations while determining patentability of the disclosed invention. See MPEP 2111. In other words, the claims must be given their broadest reasonable interpretation consistent with the specification and the interpretation that those skilled in the art would reach. See *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000), *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999), and *In re American Academy of Science Tech Center*, 2004 WL 1067528 (Fed. Cir. May 13, 2004). Any term that is not clearly defined in the specification must be given its plain meaning as understood by one of ordinary skill in the art. See MPEP 2111.01. See also *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989), *Sunrace Roots Enter.*

Co. v. SRAM Corp., 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003), *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 67 USPQ2d 1132, 1136 (Fed. Cir. 2003). The interpretation of the claims by their broadest reasonable interpretation reduces the possibility that, once the claims are issued, the claims are interpreted more broadly than justified. See *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Therefore, the failure to significantly narrow definition or scope of the claims and supply arguments commensurate in scope with the claims implies the Applicant intends broad interpretation be given to the claims. The Examiner has interpreted the claims in parallel to the Applicant in the response and reiterates the need for the Applicant to distinctly define the claimed invention.

Since no substantial amendments have been made and the Applicant's arguments are not persuasive, the claims are drawn to the same invention and the text of the prior art rejection can be found in the previous Office Action. Therefore, the Examiner maintains that the references cited and applied in the last office actions for the rejection of the claims are maintained in this office action.

Claim Rejections - 35 USC § 102

5. The following is quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Lanza fame et al. (US#7,006,511).

Regarding claim 1, Lanza fame discloses a system and method of controlling a buffer for reducing jitter in a packet network, comprising: receiving packets into the buffer with a fast attack rate, and draining packets from the buffer with a slow decay rate (See Fig. 2; Col. 5, lines 39 plus). As shown in Fig. 5 which illustrated a flow diagram of a dynamic jitter buffering process, in which the jitter measurements in the inventive process are processed using a filter having *fast attack and slow decay characteristics* (adaptation control algorithm with fast attack and slow decay characteristics). Such a filter provides a "peak stretcher" function of the buffer (Col. 7, lines 18 plus). It's noted that, generally the fast attack and slow decay filter (*acts as a controlled time constant filter*) rapidly responds to an increase in signal amplitude and slowly decays the amplitude of the control signal in response to a decrease in input signal amplitude.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lanzafame et al. (US#7,006,511) in view of Liu et al. (US#2005/0058146).

With respect to claims 2-4, Lanzafame et al. (US#7,006,511) and Liu et al. (US#2005/0058146) disclose a novel method and system for controlling a buffer for reducing jitter in a packet network utilizing adaptation control algorithm, according to the essential features of the claims. Lanzafame teaches the limitations, substantially as claimed, as described in claim 1 - paragraph 4 above. Lanzafame further teaches the dynamic jitter buffering, in which maximum and minimum bounds are placed on the jitter buffer target as follows. The target maximum is typically the amount of physical buffer memory divided by two. The target minimum is based on the known minimum jitter imposed by a particular transmitter and receiver implementation, as well as a quantity referred to herein as the "low water mark" of the receiver, i.e., the target minimum is given by $\text{target_min} = \text{known_min_jitter} + \text{low_water_mark}$. The low water mark, which is equal to or lower than the target minimum, is a level at which the jitter buffer size is considered to be so low as to need immediate and substantial corrective action to

prevent jitter buffer underrun. The low water mark is based on the minimum processing time needed for the receiver to properly perform receiver operations such as depacketize, decode, etc. for a given received packet. In accordance with the Lanzafame's invention, a "dynamic low water mark" is one that changes in response to receiver load. In general, it is desirable to have the low water mark and thus the target minimum as low as possible so as to minimize delay. Therefore, the low water mark may be configured to adjust itself based on the receiver load (See Fig. 5; Col. 3, lines 13 plus and Col. 7, lines 25 plus).

However, Lanzafame does not expressly disclose the step wherein setting high watermark value equal to the count value simultaneously with setting the low watermark value equal to the count value. In the same field of endeavor, Liu et al. (US#2005/0058146) discloses in Fig. 2 a block diagram illustrated the architecture of self-adaptive jitter buffer, in which HWM (High Water Mark) and LWM (Low Water Mark) are respectively defined as the high and low overflow threshold of the jitter buffer. Between HWM and LWM, and within the area of UTB (Upper Target Boundary) and LTB (Lower Target Boundary) is a target working zone. When the filling level is out of the working zone, the working parameters of the buffer will be adjusted by the self-adaptive procedure, and the filling level will be dragged back to the working zone, where HWM, LWM, UTB, LTB should all be adjusted according to the condition of network jitter. The self-adaptive adjustment method above was developed according to the characteristics of real-time services, and especially optimized for transferring real-time voice over the packet-switched network ([0002]-[0010]).

One skilled in the art would have recognized the need for effectively and efficiently controlling a buffer for reducing jitter in a packet network, and would have applied Liu's novel

use of HWM, LWM, UTB, LTB should all be adjusted according to the condition of network jitter into Lanzafame's teaching of the controlling a variable size jitter buffer used to store information in packet networks. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Liu's self-adaptive jitter buffer adjustment method for packet switched network into Lanzafame's dynamic jitter buffering for VoIP and other packet-based communication systems with the motivation being to provide a method and system of dynamic adaptation for jitter buffering in packet networks.

Allowable Subject Matter

10. Claims 5-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is an examiner's statement of reasons for the indication of allowable subject matter: The closest prior art of record fails to disclose or suggest wherein the draining packets from the buffer comprises: i) obtaining a current Dequeue TimeStamp; ii) calculating the difference between the current Dequeue TimeStamp and a previous Dequeue TimeStamp is calculated; iii) if the difference is greater than a Dequeue Time Tick, a determination is made as to whether the buffer is empty and if the buffer is not empty a DequeueBuffer event is generated and both the difference and Dequeue Time Stamp are updated; iv) if the buffer is empty data is inserted by invoking packet loss concealment, and the Dequeue Time Stamp is updated; v) following step iv) or if the difference is not greater than the Dequeue Time Tick, a determination is made as to whether a predetermined time period has elapsed since a previous buffer slip

adjustment; vi) if said predetermined time period has elapsed, then if said low watermark exceeds a low watermark threshold then a DequeueBuffer event is generated and a shrink counter is incremented; vii) if said low watermark does not exceed said low watermark threshold, then said high watermark and said low watermark are set to said count value; viii) following step vii) or if said predetermined time period has not yet elapsed, a determination is made as to whether the buffer is overflowing, in response to which said DequeueBuffer event is generated, as specifically recited in claims.

12. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Smith et al. (US#6,862,298) is cited to show the adaptive jitter buffer for Internet telephony.

The Bonneau (US#6,671,258) is cited to show the dynamic buffering system having integrated random early detection.

The Scott (US#2003/0081597) is cited to show the dynamic buffering in packet systems.

The Bloch et al. (US#6,922,408) is cited to show the packet communication buffering with dynamic flow control.

14. **THIS ACTION THIS ACTION IS MADE FINAL.** See MPEP ' 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Phan whose telephone number is (571) 272-3149. The examiner can normally be reached on Mon - Fri from 6:00 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel, can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

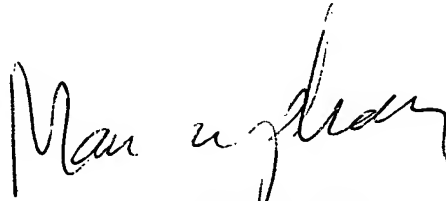
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at toll free 1-866-217-9197.

Mphan

Jan. 31, 2008

A handwritten signature in black ink, appearing to read "Man U. Phan", written in a cursive style.

MAN U. PHAN
PRIMARY EXAMINER